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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,489	12/22/2000	Torsten Teich	DE919990076	8948
46369	7590	07/17/2006	EXAMINER	
HESLIN ROTHENBERG FARLEY & MESITI P.C.			KHOSHNOODI, NADIA	
5 COLUMBIA CIRCLE			ART UNIT	
ALBANY, NY 12203			PAPER NUMBER	
			2137	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/746,489	Applicant(s) TEICH ET AL.	
	Examiner Nadia Khoshnoodi	Art Unit 2137	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 May 2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 21-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Appeal Brief Filed***

Arguments presented in Applicants' appeal brief filed 5/30/2006 have been fully considered and are persuasive. Thus, the Examiner is re-opening prosecution, i.e. withdrawing the Final Office Action mailed 12/2/2005, and issuing another Non-Final Office Action as shown below. Claims 1-20 are pending in this application and have been addressed below.

***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the methods as described in claims 1 and 8 with specific regard to the "update stage" and the "atomic write stage" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 101***

I. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

II. Claims 1, 8, and 20 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 112***

III. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

IV. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 1, 8, and 20:

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The term "at least some records" in claim 1 is a relative term which renders the claim indefinite. The term "some records" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Furthermore, claims 1, 8, and 20 provide for the use of securely managing an arbitrary number of data files in non-volatile storage in order to restore data after abortion of a write operation, but, since the claim does not set forth any specific steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

As per claims 2-7 and 9-19:

These claims are rejected by virtue of their dependency on independent claims 1, 8, and 20.

***Claim Rejections - 35 USC § 103***

V. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

VI. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malcom et al., US Pub. No. 2002/0004917, and further in view of Harris et al., US Patent No. 5,873,097.

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As per claim 1:

Malcom et al. substantially teach a method of securely managing a number of data files in non-volatile storage in order to restore data after abortion of a write operation (par. 7), the data being stored in a record oriented data structure with each of the records containing, in addition to the data contents, a first reference indicating the current data-containing record of a previous file, and a second reference indicating the current data-containing record of a subsequent file (par. 61-62), wherein, the write operation comprises an update stage and an atomic write stage, the update stage comprising multiple update operations performed for a plurality of records (par. 104), and wherein the updates to the plurality of records are accepted in one atomic write stage after completion of the multiple update operations, the one atomic write stage employing the first references of the at least some records of the plurality of records (par. 108) and wherein at all times during the write operation, all of the data files affected by the write operation contain either all of the data stored prior to the write operation, or all of the data as modified subsequent to the write operation (par. 93 and par. 114).

Not explicitly disclosed is the update stage comprising employing the second references of at least some records of the plurality of records. However, Harris et al. teach that the second references of the objects must be employed when new objects are added or existing objects are deleted (col. 86, lines 12-50). Therefore, it would have been obvious to a person in the art at the time the invention was made to modify the method disclosed in Malcom et al. to employ the second references when adding/updating/deleting objects within the data structure. This modification would have been obvious because a person having ordinary skill in the art, at the time the invention was made, would have been motivated to do so since Harris et al. suggest that

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the second references of the objects added must be employed in order to maintain a sorted list in col. 33, lines 52-57.

As per claim 2:

Malcom et al. and Harris et al. substantially teach the method as claimed in claim 1. Furthermore, Harris et al. teach wherein each file affected by a write operation comprises a plurality of records, one of said records in the or each file containing the data prior to said write operation and another of said records being modified according to said write operation (col. 34, lines 41-44), each of said records also comprising a status byte indicative of the status of the data contained therein (col. 85, lines 12-35).

As per claim 3:

Malcom et al. and Harris et al. substantially teach the method as claimed in claim 2. Furthermore, Malcom et al. teach wherein said data prior to the write operation, in each file, is retained as the active data in the case of a power failure, until all files have been successfully updated according to said write operation (par. 90-93).

As per claim 4:

Malcom et al. and Harris et al. substantially teach the method as claimed in claim 1. Furthermore, Harris et al. teach wherein each record contains a synchronization byte, indicating a relationship with records of other files (col. 34, lines 33-44).

As per claim 5:

Malcom et al. and Harris et al. substantially teach the method as claimed in claim 3. Furthermore, Harris et al. teach wherein each record contains a synchronization byte, indicating a

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relationship with records of other files (col. 34, lines 33-44).

As per claim 6:

Malcom et al. and Harris et al. substantially teach the method as claimed in claim 5.

Furthermore, Malcom et al. teach each record comprising a first pointer indicating the current data-containing record of a previous file and a further pointer (PTR 3) indicating the current data-containing record of a subsequent file (par. 61-62).

As per claim 7:

Malcom et al. and Harris et al. substantially teach the method as claimed in claim 6.

Furthermore, Malcom et al. teach the method comprising a second pointer (PTR 2) indicating the current data-containing record of that file (par. 61).

VII. Claims 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malcom et al., US Pub. No. 2002/0004917, and further in view of Harris et al., US Patent No. 5,873,097 and Chan et al., US Patent No. 5,331,189.

As per claims 8 and 20:

Malcom et al. substantially teach a method/system of securely managing non-volatile storage with data files in order to restore data after abortion of a write operation, the data being stored in the files in a record-oriented data structure (par. 7), such that the data in all files affected by the write operation is consistent with respect to completion of the write operation (par. 108), and wherein information concerning the status and location of the consistent data is stored in the record oriented data structure together with the data (par. 61-62), wherein each records of the record oriented data structure of the files comprises, in addition to data contents, a first reference indicating the current data-containing record of a previous file, and a second



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reference indicating the current data-containing records of a subsequent file (par. 61-62), wherein the write operation comprises an update stage and an atomic write stage, the update stage comprising multiple update operations performed for a plurality of records (par. 104), and wherein the atomic write stage is performed upon completion of the multiple update operations and employs the first references of the at least some records of the plurality of records (par. 93 and 114).

Not explicitly disclosed is wherein the non-volatile storage is an EEPROM. However, Chan et al. teach an EEPROM which allows for an easily scalable structure (col. 4, lines 5-10). Therefore, it would have been obvious to a person in the art at the time the invention was made to modify the method disclosed in Malcom et al. to use this specific EEPROM in order to allow the data structure to have an easily scalable structure when records are added/deleted. This modification would have been obvious because a person having ordinary skill in the art, at the time the invention was made, would have been motivated to do so since Chan et al. suggest that using this specific EEPROM has the advantages of being highly resistant to disturbance as well as easily scalable to add/deleted records in col. 4, lines 5-10.

Also not explicitly disclosed is the update stage comprising employing the second references of at least some records of the plurality of records. However, Harris et al. teach that the second references of the objects must be employed when new objects are added or existing objects are deleted (col. 86, lines 12-50). Therefore, it would have been obvious to a person in the art at the time the invention was made to modify the method disclosed in Malcom et al. to employ the second references when adding/updating/deleting objects within the data structure. This modification would have been obvious because a person having ordinary skill in the art, at

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the time the invention was made, would have been motivated to do so since Harris et al. suggest that the second references of the objects added must be employed in order to maintain a sorted list in col. 33, lines 52-57.

As per claim 9:

Malcom et al., Chan et al., and Harris et al. substantially teach the method according to claim 8. Furthermore, Harris et al. teach wherein two or more data files are affected by said write operation, and wherein new or modified data is written into said files in a cyclic manner, wherein each file comprises an indication of the number of records contained in said file and a plurality of records (col. 34, lines 41-44), and wherein each record comprises an indication of the status of the data in said record (col. 85, lines 12-35), a synchronization number synchronizing with records of other files, and said data (col. 34, lines 33-44).

As per claim 10:

Malcom et al., Chan et al., and Harris et al. substantially teach the method according to claim 9. Furthermore, Harris et al. teach the method comprising determining a current active record of a first of said files, and a working record of said first file (col. 85, lines 1-36); setting the synchronization number of the working record of said file to the synchronization number of the current active record (col. 34, lines 33-44); copying the data stored in said current active record into said working record and adding to or modifying said data according to said write operation, in said working record; changing the status of said working record of said file to 'active' (col. 6, lines 59-63 and col. 85, lines 1-36); repeating said steps for each further file; and changing the record status of said original current active record of said first file to 'inactive' as

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an indication that said write operation is complete (col. 5, lines 10-28).

As per claim 11:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 10. Furthermore, Harris et al. teach wherein said step of determining the current active record and the working record of said files comprises searching for the first record in said file whose status byte indicates `active` status and setting this record as said current active record, and setting the subsequent record as said working record (col. 7, lines 5-32).

As per claim 12:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 11. Furthermore, Harris et al. teach the method comprising: adding to or modifying the data of a record in the first file by: identifying the current active record of said file and a working record and copying the data to be added to or modified from the current active record to the working record (col. 7, lines 5-18); modifying the data in said working record in accordance with the write operation (col. 7, lines 5-8); wherein the status byte of said current active record indicates that that record is `fully active` and the status of said working record indicates that that record is `inactive` (col. 7, line 61 – col. 8, line 19); setting synchronization indicator pointers to indicate that said file is said first file and to indicate that no further files have been modified (col. 8 lines 20-38); identifying a current active record and a working record of a second file and copying the data from the current active record to the working record (col.6, lines 59-63); modifying the data in the working record according to said write operation, wherein the status byte of said active current record indicates that the data in this record is "fully active" and the status byte of the working record indicates that this record is `inactive` (col. 7, line 61 – col. 8,

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line 19); setting synchronization indicator pointers to indicate the link between this file and said first file, and changing said synchronization indicator pointer of said first file to indicate its link with said second file (col. 8 lines 20-38); and repeating these steps for said second file for any subsequent files, wherein for the last file affected by said write operation, after setting said synchronization indicator pointers, determining that this is the last file, setting an indication pointer to indicate that no subsequent files are affected by said writing operation (col. 8 lines 20-38); and setting the status byte of each of said working records of said affected files to a 'fully active' state, whereupon the write operation is complete and the modified data is the active data in all files (col.6, lines 59-63).

As per claim 13:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 12. Furthermore, Harris et al. teach the method wherein, upon interruption of said write operation at any stage, either all current active records of all files affected by said operation are set as 'fully active' records, and the data contained in said files prior to the start of said write operation is the current active data, or all working records of all files are set to a 'fully active' status, in which case all files contain the modified data due to said write operation as said active data (col. 6 lines 59-63).

As per claim 14:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 13. Furthermore, Harris et al. teach the method wherein interruption of said write operation during or immediately after the step of modifying the data in the working record of said first file results in the current active record of said first file remaining as the 'fully active'

data record, at which time no further files have been modified and all of the `active` datable files correspond to the data prior to the write operation (col. 7, lines 2-17).

As per claim 15:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 13. Furthermore, Harris et al. teach the method wherein an interruption of said write operation during or subsequent to the setting of the synchronization indicator pointers in said first file results in the current active record of said first file remaining as the `fully active` data record, at which time no further files have been modified and all of the `active` datable files correspond to the data prior to the write operation (col. 85, lines 1-36).

As per claim 16:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 13. Furthermore, Harris et al. teach wherein an interruption of said write operation during or immediately after the step of modifying the data in the second or subsequent files results in the current active record of said second or subsequent file remaining set as said `fully active` record, and, since said synchronization indicator pointer of said first file still indicates that said current active record is still said `fully active` record of said first file, the currently active data of both or all of said files remains as that prior to the start of the write operation (col. 85, lines 1-36).

As per claim 17:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 13. Furthermore, Harris et al. teach wherein an interruption to said write process during or immediately after modifying the data in the working record of the last file affected by said write

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operation, results in all of the current active records of all of said files being retained as said fully active records, wherein the currently active data corresponds to the data prior to the write operation (col. 85, lines 1-36).

As per claim 18:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 13. Furthermore, Harris et al. teach wherein an interruption of said write process during or immediately after modification of the data in the working record of the last file affected by said write operation, causes all working records of all of said files to become set to 'fully active' records, such that all files contain data modified as a result of said write operation as the currently active data (col. 85, lines 1-36).

As per claim 19:

Malcom et al., Chan et al., and Harris et al. substantially teach the method as claimed in claim 12. Furthermore, Harris et al. teach wherein, when all of said write steps have been successfully completed, without an interruption, said synchronization indicator pointers are used to indicate the links between the modified records of the files affected, and all working records are set to status 'fully active' and said current active records are set to status 'inactive' (col. 85, lines 1-36).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nadia Khoshnoodi whose telephone number is (571) 272-3825. The examiner can normally be reached on M-F: 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on (571) 272-3865. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Nadia Khoshnoodi*

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(B)  
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